Ecosystem Management Program
BULLETIN

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ARMY GARRISON HAWAII WINS US FISH AND WILDLIFE SERVICE'S 2006 MILITARY INSTALLATION CONSERVATION PARTNER AWARD. The US Fish and Wildlife Service (USFWS) established the Military Installation Conservation Partner Award in 2004 to recognize military installations that have done outstanding work with the USFWS to promote conservation on military lands. The US Army Garrison Hawaii's Pōhakuloa Training Area (PTA) portion of the Natural Resource Program has won the third annual award.

Solanum incompletum, Pōpolo kū mai

Pōhakuloa is home to 15 endangered plants, 4 birds, and a bat. The Army's Natural Resource Program is responsible for managing more individuals of listed species than any other Army installation. Several of these endangered plant species are currently found nowhere else in Hawai'i and their numbers are extremely low. The Natural Resource Staff (NRS) has addressed the threats to these species by thinking outside of the proverbial box and developing creative, but realistic solutions to protect unique ecosystems and benefit listed species for future generations while also taking into account the military's mission to train at Pōhakuloa.

"Hasty fences" erected at Pōhakuloa to protect rare plant species

The NRS have developed an interagency team called the PTA Implementation Team whose job it is to develop an in depth multi-species management plan that will guide the installation's management of its species. This team includes biological expertise from the Forest Service, State of Hawaii Department of Land and Natural Resource, USFWS, US Geological Survey Biological Resources Division, as well as other private consultants.

One of the major threats listed in the recovery plans for the various plant species at PTA and their habitat are feral ungulates. To prevent further feral ungulate damage to the unique ecosystem found at PTA, the Army will fence a total of 33,000 acres at PTA. This

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fenceline will also benefit the birds and the bat found at PTA by protecting their habitat from degradation.

The USFWS also recognized Pōhakuloa's cooperative conservation achievements, especially the pro-active habitat restoration and monitoring; which goes above and beyond the requirements of the Endangered Species Act. The award recognizes the cooperative nature of conservation work and commends the Army in Hawai'i for working well with other organizations to further this cause. In recognition of these conservation achievements, Dale Hall, Director of the Fish and Wildlife Service will present the Military Installation Conservation Partner Award on March 22, 2007, at the 72nd North American Wildlife and Natural Resources Conference in Portland, Oregon.

Keiki ready for outplanting back in the wild

NATURAL RESOURCE STAFF MONITOR HAWAIIAN HOARY BATS AT PTA. PTA Natural Resource staff are now in their second month of monitoring the endangered Hawaiian hoary bat or `Ōpe`ape`a (*Lasiurus cinereus semotus*). The bat is endemic to the State of Hawai`i where it is the only extant, native terrestrial mammal. Resident breeding populations are now found only on the islands of Hawai`i, and Kaua`i. Roosting in trees during the day, and being a fairly solitary animal have made research on the species particularly difficult. Little is currently known about their habitat preferences, roosting habitat requirements, movements or population size.

"bat detector"

To study the bats at PTA, staff are using automated acoustic recording equipment to detect the presence of bats, eventually determining the extent to which each surveyed patch is "occupied" by bats. Five such "bat detectors" are deployed for a week at a time throughout the installation. The detectors will be moved to new random locations in five habitat types throughout the year, providing data to bring to bear on hypotheses about habitat associations and changes in seasonal and inter-annual occupancy at PTA. Currently, over 100 sample-nights of data have been recorded, representing all habitat types at PTA. Not only will this information help provide guidance for

minimizing the disturbance of bats at PTA, the project will compliment concurrent studies conducted by US Geological Survey-Biological Resources Division investigating seasonal bat movements throughout the Big Island.

HAWAIIAN FORESTS TOP THE LIST AS THE MOST THREATENED BIRD HABITAT IN THE NATION. The American Bird Conservancy's2007 Report "The Top 20 Most Threatened Bird Habitats in the US" ranked native Hawaiian forests as the number one most threatened bird habitat. The threats to the forest include invasive species (plant and animal), deforestation, and disease. The report points

What a native Hawaiian forest looks like

out that "the Hawaiian Islands have suffered more bird extinctions in recent centuries than any area of comparable size on Earth!" Twenty four of Hawaii's birds have already gone extinct. Thirty of Hawaii's 71 endemic bird species are currently on the Federal endangered species list. One reason for this is that since humans came to the islands, over 50% of the native forest has been lost. The most surprising issue identified in the report was that even though Hawai'i has these very pressing conservation issues, it ranks among the bottom in regards to funding spent on conservation by the State. The full report can be found at: http://www.abcbirds.org/habitatreport.pdf.

COQUI INFESTATION CONTROL ON SCHOFIELD BARRACKS EAST RANGE CONTINUES. In 2001, a new pest species was discovered in Wahiawā, the coqui frog. This species of frog is native to Puerto Rico. Hawai'i has no native frog species. Introduced into the area on greenhouse plants at a private residence, the frogs quickly spread into neighboring yards, including Schofield Barracks East Range (SBE).

The coqui is small but packs a mighty voice!

While coqui feed on arthropods in leaf litter during the day, at night, males climb 3 to 7 feet into trees and shrubbery, singing their classic two-tone call in hopes of attracting females. Coqui are unique in that they do not have a tadpole stage; this means that they do not require a body of water, such as a stream or puddle, to survive. Instead, females lay their clutches of eggs on moist leaf debris or moss. This independence from standing water means that coqui can spread easily through forested areas. At home in Puerto Rico, females may lay 6 clutches per year, but in lab conditions in Hawai'i, coqui have laid as many as 26 clutches per year. The high reproductive potential of coqui is checked in Puerto Rico by predators, such as snakes, tarantulas, and scorpions. However, Hawai'i lacks such predators, and coqui can reach much higher densities here (greater than 200 frogs in a 20x20 meter area) than in a natural Puerto Rican setting (40 frogs in a 20x20 meter area).

Why are local environmentalists and communities so worried about the spread of coqui? For a variety of reasons, both ecological and economic. The largest issue is that these tiny frogs create a very big noise problem. Calls are between 90-100 decibels. High population densities of coqui mean numbers of nighttime calls are amplified – what in Puerto Rico is a charming evening serenade becomes a high volume, constant nighttime roar in Hawai'i. In some highly infested areas of the Big Island, the coqui chorus is as loud as a chainsaw running outside your bedroom window.

Coqui female with a clutch of eggs

Coqui infestations affect property values, and are bad for tourism. Ecologically speaking, the addition of any new species with a high reproductive rate and voracious appetite is dangerous. It is difficult to predict all potential impacts of adding a major predator to a delicate ecosystem like Hawaii's, but coqui could severely impact unique native insect and spider populations. Coqui could also compete with endangered native forest birds for food. In addition, the coqui provide an excellent food source for other invasive species, such as rats and mongoose. With coqui as a ready and plentiful food source, the potential of other, more dangerous invasive species like the brown tree snake is greatly increased.

Once coqui were discovered in Wahiawā, a joint task force was created to deal with the infestation. Partners from the Department of Agriculture, O'ahu Invasive Species Committee, Department of Fish and Wildlife Service, and the Natural Resources Division of DPW Environmental created the Coqui Working Group (CWG). Over the past six years, the CWG directed control efforts in Wahiawā, working with both private residents and the Army to eradicate the infestation. In 2005 and 2006, large scale sprays of citric acid were highly effective in reducing frog numbers. Sprays were conducted between April and September, during the coqui breeding season, when the frogs are easiest to locate. The infestation is now estimated at 30-40 frogs, down from hundreds of frogs in 2001. While eradication efforts at SBE are going well, NRS is very concerned about the potential for new infestation sites. Coqui spread easily via infested nursery plants or plant matter. They have even hidden on lumber and storage containers to get from the Big Island to O'ahu. If you think you hear coqui, please call the coqui hotline at 643-PEST.

For more information, and to hear the sounds of coquí, check out the following websites: http://www.hear.org/AlienSpeciesInHawaii/species/frogs/; http://www.ctahr.hawaii.edu/coqui/index.asp All photos in this article are from these two websites.

Cyrtandra viridiflora, (no common name)

UPPER HALEMANO STREAM FENCE COMPLETED! The NRS and partners have completed the Helemano stream feral ungulate exclosure. NRS, Kamehameha Schools and State of Hawaii Division of Forestry and Wildlife have been working together since early 2002 on this project. The group has overcome many hurdles along the way and NRS would like to extend its gratitude to the partners for their resilience in this endeavor.

The majority of the fence was completed by Southwest Fencing Company with NRS helping to complete some short sections and installing cross-overs to facilitate hiking access. This is only the second ecosystem scale ungulate exclosure in the Ko'olau Mountains and is an important step in the preservation of the areas resources.

The exclosure is located in the leeward northern Ko'olau Mountains, O'ahu. Kamehameha Schools owns the land and allows the Army to use it for training. The area is currently utilized for helicopter over flight training.

Helemano headwaters with short windswept crest vegetation

The fence ranges from roughly 2,200 ft to 2,800 ft and encompasses the head waters of the Helemano Stream. The fence protects roughly 250 acres of native forest. This area is rich in native plant diversity and home to at least 9 species of listed, proposed, and candidate plant species and one species of endangered tree snails. Much of the area remains to be explored and probably harbors undiscovered resources!

Cyanea st.-johnii, Haha

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